

# A GLOSSARY OF TECHNICAL TERMS FOR USE IN INDIAN FORESTRY

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APPENDIX III—*contd.*

*Forestry terms peculiar to the United States of America and their English equivalents—contd.*

American term.	English equivalent.
Income rotation . . . .	Rotation of the highest income.
Increment . . . .	Volume or value increment.
Index . . . .	Normal.
Index forest . . . .	Normal forest.
Intolerant . . . .	Light demanding.
Large pole . . . .	A tree, 8-12 inches in diameter breast-high.
Large sapling . . . .	A sapling 10 feet or over in height.
Method of successive fellings .	Method of successive regeneration fellings.
Mixed seedling and sprout forest.	Coppice with standards.
Mold . . . .	Humus. Leaf Mould.
National forest . . . .	Crown or Government forest.
Patch method . . . .	Method of clear felling by patches.
Plot survey . . . .	Enumeration survey by sample plots.
Pole . . . .	A tree, 4-12 inches in diameter breast-high.
Removal cuttings . . . .	Successive regeneration fellings.
Reserve seed method . . . .	Method of clear fellings with reserves.
Reserve sprout method . . . .	Method of coppice with standards.
Rock in, to . . . .	Planting in.

APPENDIX III—*contd.*

*Forestry terms peculiar to the United States of America and their English equivalents—contd.*

American term.	English equivalent.
Deaden, to . . . .	Girdle, to.
Dry pruning . . . .	Pruning dead branches.
Duff . . . .	Litter.
Fail spot . . . .	A place where natural or artificial reproduction has failed.
First growth . . . .	Virgin forest.
Forestation . . . .	Afforestation.
Forest extension . . . .	Afforestation.
Forestral . . . .	Pertaining to forestry.
Forest replacement . . . .	Re-afforestation.
Green pruning . . . .	Pruning live branches.
Group mixture . . . .	A mixed forest in which trees of the same species occur in small groups.
Group seed method . . . .	Clear felling with reserves in groups.
Harden off, to . . . .	To prepare seedlings in the seed bed for transplanting by gradually exposing them to wind and sunlight.
Heel in, to . . . .	To store young trees for planting by laying them against the side of a trench and covering the roots with earth.
Hill planting . . . .	Mound planting.
Improvement thinning . . . .	Improvement felling.

## INTRODUCTION.

THIS list of Forest Technical Terms has been compiled in the hope that many of them will be brought into use at once and so help to provide a desirable uniformity in the definitions used in professional literature, for it seems certain that such literature will, in the future much more largely than in the past, influence the progress of Indian Forestry. It is not claimed that the list is complete or that the definitions are in all cases satisfactory. The author will be glad to receive any suggestions which may facilitate the issue of an improved 2nd Edition.

S. EARDLEY-WILMOT,

*Inspector General of Forests.*



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# A GLOSSARY OF TECHNICAL TERMS FOR USE IN INDIAN FORESTRY.

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**Abnormal forest.** A forest in which the quantity of material in the growing stock is insufficient or superabundant; or in which the proportion between the age classes is defective.

*See* Normal forest.

**Absolute form factor.** *See* Form factor.

**Accessory produce.** That material which is of secondary importance as regards the management of a forest.

**Accessory species.** A species of inferior quality or size, of little value or importance.

**Acid humus.** Humus which is too wet and insufficiently aerated, thus obstructing rather than aiding the growth of forest vegetation.

**Administration, Forest.** *See* Forest administration.

**Advance cutting or felling.** *See* Preparatory felling.

**Actual possibility.** *See* Possibility, Actual or Present.

**Advance growth.** Young trees which have sprung up in openings in the forest or under the forest cover before reproduction cuttings are begun.

**Adventitious buds.** Those produced irregularly from any part of the stem, leaves, or roots.

**Adventitious roots.** Those produced otherwise than by direct prolongation of the radials of the embryo.

**Afforest, to ; or Afforestation.** (i) To establish a forest either by natural or artificial means.

(ii) To take proceedings under a Forest Act to have any land declared to be reserved forest.

**Age.** The age of a regular or even-aged crop is the mean age of the trees composing it. In a crop of mixed ages, the age of the class (of trees of the principal species) most numerously represented is generally taken and alluded to as the *predominant age*.

**Age class.** That portion of a crop which is approximately of one age.

**Age classification.** The division of a crop according to differences in the age.

**Age, Exploitable.** The age when the main crop in a forest has attained the condition that is required in order to fulfil the purpose for which it is worked. The exploitable age also expresses the time required by the new growth in a crop which is being generated to attain that condition.

*See* Rotation.

**Age gradations.** A series or part of a series of trees or crops ranging from the seedling to the mature tree.

**Aged, Even.** When the crop is approximately all of one age class. *See* Crop.

**Aged, Uneven.** When the crop is of many different age classes. *See* Crop.

**Alburnum trees.** Without ascertained distinction between heartwood and sapwood.

**Allotment of woods to the different periods of one rotation ; or Allotment into periodic blocks.** The sub-division of a forest into blocks equal in number to the periods in the rotation, so that in each period one block may be treated by the method of successive regeneration fellings or in other ways.

**Analysis, Stem.** *See* Stem analysis.

**Analysis, Tree.** *See* Tree analysis.

**Annual increment.** The material produced on a tree, or a given area in one year. *See* Average annual increment ; Current annual increment.

**Annual ring.** The layer of wood produced by the growth of one year, as seen in cross section.

**Arborescent shrub.** *See* Shrub, Arborescent.

**Area, Basal.** *See* Basal area.

**Area, Catchment.** *See* Catchment area.

**Area, Cutting.** *See* Coupe.

**Area, Experimental.** *See* Experimental area.

**Area, Sample.** *See* Sample area.

**Artificial form factor.** *See* Form factor.

**Artificial regeneration.** Regeneration obtained by sowings, plantings, or other artificial means. *See* Regeneration.

**Artificial reproduction.** The renewal of a forest by sowing or planting or other artificial means.

**Aspect.** The direction in which a forest faces.

**Assessment of yield capacity ; or Assessment of the quality of the locality.** The determination by actual measurements of the quantity of material which a given area is capable of producing under normal conditions as long as the factors of the locality remain unchanged.

**Auxiliary species.** A useful species of less value than the principal species, which assists the growth of the latter and influences, in a smaller degree, the method of treatment.

**Average annual increment.** The total material in a tree or crop divided by its age in years.

**Ball planting.** Planting young trees with balls or lumps of earth around the roots.

**Bark-blazer.** An instrument used for marking trees by scoring the bark.

**Basal area.** The area of a cross section of the butt of a tree, or the sum of such areas.

**Basket planting.** Pricking out seedlings from the seed bed into loosely woven baskets.

**Bearer, Seed.** *See* Seed bearer.

**Bearer, Shade.** *See* Shaded bearer.

**Beat.** A protective territorial charge. A sub-division of a range. A Forest Guard's charge.

**Bed, Germinating.** *See* Germinating bed.

**Bed, Seed.** *See* Seed bed.

**Belt, Protective.** *See* Protective belt.

**Blank.** An unstocked area where, from any cause, few or no trees are growing.

**Blaze, to.** To mark standing trees selected for any purpose.

**Blaze, Gum or Resin.** *See* Resin blaze.

**Blazer, Bark.** *See* Bark-blazer.

**Block.** A natural main division of a forest, generally bearing a local proper name.

**Block, Periodic.** *See* Periodic block.

**Bole.** The trunk or stem of a tree from the ground to the point where its main branches are given off. The lower part of the bole, if free of any branches, is called the *clear bole*.

**Books, Control.** *See* Control books.

**Borer, Increment.** An instrument for extracting a cylinder of wood from the stem of a tree. Also known as "Pressler's Borer".

**Branch, Epicormic.** *See* Epicormic branch.

**Breasthigh.** A height of  $4\frac{1}{2}$  feet above the ground.

**Broadcast sowing.** When seed is distributed over the whole area to be stocked.

**Broad-leaved trees.** A distinguishing term in distinction to conifers. Generally deciduous trees.

**Broad-leaved wood.** A wood composed of trees which are not conifers.

**Brul .** An area over which fire has run to the noticeable injury of the forest.

**Brushwood.** A growth of low shrubs and bushes; used also to indicate the fallen or cut branches and twigs of trees.

**Bud, Adventitious.** *See* Adventitious bud.

**Bud, Dormant or Latent.** *See* Dormant bud.

**Bush.** Undershrubs, and every degraded condition of shrubs and trees, in which the plants consist of numerous low spreading branches, or fork out into a number of thin stems.

**Calliper.** An instrument for measuring the diameter of round timber.

**Canopied forest.** A forest composed of trees the crowns of which form a more or less continuous leaf cover. When the lateral branches of the trees constituting the crop touch one another without being shaken by the wind.

**Canopy; or Leaf Canopy.** The mass of foliage formed by the crowns of a collection of trees in a forest.

**Canopy, Close or Closed.** *See* Close canopy.

**Canopy, Dense.** *See* Dense canopy.

**Canopy density.** The comparative impermeability to light of the mass of foliage formed by the crowns of the trees in a forest. The following degrees of density are recognised:—*Close canopy*, *Open canopy*, and *Interrupted canopy*. Or, *Closed canopy*, *Dense canopy*, *Thin canopy*, *Open canopy*, and *Park forest*.

**Canopy, Interrupted.** *See* Interrupted leaf canopy.

**Canopy, Open.** *See* Open canopy.

**Canopy, Thin.** *See* Thin canopy.

**Capacity, Yield.** *See* Yield capacity.

**Capital, Forest.** *See* Forest capital.

**Catchment area.** The total area from which aqueous precipitations flow into a given water-course.

**Cattle.** Includes elephants, camels, buffaloes, horses, mares, geldings, ponies, colts, fillies, mules, asses, pigs, rams, ewes, sheep, lambs, goats, and kids.

**Charcoal kiln.** *See* Kiln, Charcoal.

**Check counting.** A re-enumeration of the whole or part of the forest stock with a view to verifying the results of a previous counting.

**Circle, Working.** *See* Working circle.

**Class, Age.** *See* Age class.

**Class, Diameter or Girth.** *See* Diameter class.

**Class, Form factor.** *See* Form factor class.

**Class, Height.** *See* Height class.

**Class, Locality.** *See* Locality class.

**Class, Tree.** *See* Tree class.

**Classification, Age.** *See* Age classification.

**Clean fell, to.** *See* Clear fell.

**Cleaning.** The removal of inferior individuals or species from a crop, especially where these are interfering with the superior growth.

**Clear, to.** To remove all the material from off the ground.

**Clear bole ; or Clear trunk.** *See* Bole.

**Clear fell, to ; or Clear felling.** A complete removal of the standing crop. A clear felling may be in strips, in patches, or in compartments.

**Clear felling, Method of ; or Clearances, Method of.** Removal, in one operation on a portion of the area to be treated, of the whole crop in such a manner as to pass over the entire area once during the period that is fixed for trees of the species felled to attain the exploitable size. This method includes several different forms, *viz.*,

(i) Clearings on small areas with natural regeneration, or the *Patch Method*.

(ii) Clearings on alternate parallel strips, or the *Strip Method*.

(iii) Clear fellings with artificial regeneration, or the *Compartment Method*.

*See also* System of high forest with reserves.

**Clear length.** That portion of the bole of a tree which is free from branches. *See* Bole.

**Climber.** General term including climbing, twining and creeping plants. Plants that ascend upon a support by twining, or by means of tendrils or hooks or aerial roots or other attachments.

**Close, to.** To prohibit entry into a forest for the purpose of exercising any definite act such as firing, grazing, felling, shooting, removal of grass and minor products, etc.

**Close or Closed Canopy.** When the branches or crowns of the trees interlace, or at least touch one another, without being shaken by the wind.

When the cover formed is uninterrupted and the ground is shaded

**Close crop.** A crop which is completely stocked so that the crowns of the trees interlace and form an uninterrupted leaf canopy which thoroughly shelters the ground. *See* Crop.

**Close felling.** *See* Dark felling.

**Close time.** The period during which a forest is closed, or game is protected.

**Closed forest.** A forest to which entry is prohibited for the purpose of exercising any definite act. *See* Close, to.

**Clump.** The aggregate of stems issuing from the same root or stool.

Or, the collection of culms composing an individual bamboo plant.

**Commutation of rights.** The payment of compensation in cash or kind in lieu of rights claimed in a forest.

**Compartment.** A sub-division of a block, as far as possible homogeneous as regards soil, composition, and age of the crop; or which can be described as a unit for working-plan purposes.

**Compartment line.** The boundary of a compartment.

**Compartment system.** *See* Method of successive regeneration fellings.

**Compass, Tree.** *See* Tree compass.

**Complete crop.** The maximum quantity of material which a given plot can bear at a given age. In every case a crop is, as regards its density, either *complete* or *incomplete*. It is *complete* when it presents a density conformable to its nature and age, where this is not the case it is *incomplete*. *See* Crop.

**Complete enumeration survey.** When the material constituting the growing stock is ascertained by counting or measuring all the trees over the whole area. *See* Enumeration survey.

**Composition.** The various species which form the crop, their proportion and condition.

**Conifer.** An evergreen tree which usually bears needle-like leaves.

**Conservancy, Fire.** See Fire conservancy.

**Constitution.** The presence of the different age-classes in a crop and their distribution.

**Control books.** Registers compiled with a view to recording the treatment to which forests have been subjected in accordance with the prescriptions of regular working-plans, and the results of such treatment.

**Conversion ; or Convert, to.** The application of a new method of treatment involving a change in the manner by which reproduction is obtained.

**Conversion period.** The period during which the change from one system of forest management to another is effected.

**Conversion of timber.** The work of dividing felled trees into pieces of dimensions suitable for utilization.

**Coppice ; or Coppice forest.** A crop mainly composed of trees derived from stool or root-shoots.

**Coppice, to.** Possessing the power of sending up root or stool-shoots when cut flush with or close to the ground.

**Coppice, to (ast).** To cut trees flush with or close to the ground with a view to reproduction by root or stool-shoots.

**Coppice felling.** A removal of the whole of the forest crop with a view to regeneration from the shoots and suckers of the stems felled.

**Coppice shoot.** A stem which has sprung from a stump or root and not from seed.

**Coppice system, Simple.** The formation by means of stool and root-shoots of a forest crop which is periodically removed by clear felling. The regeneration fellings in this method are called *coppice* fellings.

**Coppice with standards.** A two-storeyed forest in which coppice shoots form the lower, and selected coppice shoots or seedling trees, the upper storey.

**Coppice with standards system.** Similar to the coppice system save that a certain number of the most promising and valuable stems are reserved at each felling and suffered to attain a larger size than the rest of the coppice growth. The regeneration fellings in this method

are called *stored* or *mixed coppice fellings*, or *standard fellings* when they relate solely to the trees reserved.

**Cost value.** The total outlay on the acquisition or production of a property.

**Counterfire.** A fire started purposely some distance from a forest fire with the object that both may be extinguished when they meet.

**Counting, Check.** *See* Check counting.

**Coupe.** The area set aside to be felled over in a single year or period.

**Cover; or Covering.** The term "cover" is used to express the horizontal projection of the crown on the ground and is applied both to the ground so covered and also to the action of the cover. *See* Interrupt the cover.

**Cover, Ground or Low.** The shade afforded by small plants not being a portion of the forest crop, such as ferns, mosses, grasses and weeds.

**Cover, Surface or Soil.** *See* Surface cover.

**Creepers.** Plants with stems which extend their growth horizontally. A frequent misnomer for climber.

**Crop.** The entire collection of trees growing on a given area. The terms *stock*, *growing stock*, *tree-growth* and *crop* are synonymous. A crop may be *complete* or *incomplete* (*interrupted*), *pure* or *mixed*, *even-aged*, or *uneven-aged*; and it may be described as *crowded*, *close*, *dense*, *open* or *thin*.

Forest crops are sometimes classified as follows in terms of their stages of development :—

*Seedlings.*—From the germination of the seeds to the time when the newly developed branches meet.

*Thicket.*—From the time of the branches meeting to the fall of the lower branches.

*Poles.*—From the fall of the lower branches to the time when the crop attains its full height.

*Trees.*—From the time of the stems having attained their full height.

*See* Canopy density.

**Crop, Crowded.** *See* Crowded crop.

**Crop density.** The degree of completeness of the leaf canopy of the trees. This is usually expressed by a co-efficient: but may be described by stating the species, the number of stems and their age per unit of area.



**Crop, Interrupted.** *See* Interrupted crop.

**Crops, Irregular.** *See* Irregular crops.

**Crop, Nurse.** *See* Nurse crop.

**Crop, Seedling.** *See* Seedling crop.

**Crop, Uniform.** *See* Uniform crop.

**Crowded crop or wood.** A crop or wood which is so completely stocked that the crowns of the trees interlace and form an uninterrupted leaf canopy which completely shelters the ground.

**Crown.** The collection of main branches overtopping the bole. In an even-aged forest crop the following crown classes are recognised :—

*Predominant* : trees with an exceptionally vigorous crown.

*Dominant* : trees with a well-developed crown.

*Slightly dominant* : trees with a poorly developed crown.

*Slightly suppressed* : trees with an incomplete crown.

*Totally suppressed* : trees with the crown wholly below the level of the dominant trees.

The first three classes of dominant trees form the *major or primary part of the growing stock*; the last two classes form the *minor or secondary part of wood or intermediate yield*.

**Crown fire.** A forest fire which spreads to the crowns of the trees. *See* Forest fire.

**Culm.** The leafy shoot or aerial stem sent up from the rhizome or underground stem of a bamboo.

**Cultural operations.** Operations undertaken with the object of filling up blanks in forests, such as the sowing or planting of areas where natural reproduction of the desired species is unlikely or impossible.

**Cupshakes.** Faults in timber due to meteorological causes, such as violent winds, excessive cold, frosts, sudden changes of temperature, sun-stroke.

**Current annual increment.** (Applied to height, girth, basal area, volume). The increase in height, girth, basal area, or volume added in a given year by the growth of a tree or crop.

**Cut back, to.** The operation of cutting flush with the ground or stool any stem, younger than a formed tree, with the object of obtaining superior growth by coppice regeneration.

**Cutch or Teak tanngya.** The sowing of the seed of cutch (*Acacia Catechu*) or teak with that of field crops in forest areas which have been cleared and burnt over.

**Cutting area.** *See* Coupe.

**Cycle, Felling.** *See* Felling rotation.

**Dark or Close felling.** The removal of a few stems of a crop, so that the branches and crowns of the trees left standing will still touch one another when shaken by the wind. *See* Open felling.

**Deciduous.** A broad-leaved tree, which is leafless for some time during each year.

**Deciduous forest.** A crop composed of deciduous trees.

**Defoliate, to ; or Defoliation.** The shedding or loss of leaves owing to either natural or abnormal causes.

**Deforestation.** 1. To disestablish a forest by conversion into other land.  
2. To take proceedings under a Forest Act to have land declared as ceasing to be a reserved forest.

**Delicate species.** Species which require to be sheltered against injurious influences during their early years.

**Demarcation.** The act of setting out or marking the limits or boundaries of a forest.

**Dendrology.** The natural history of trees.

**Dendrometer.** An instrument for measuring trees.

**Dense.** A term applied to a crop which is so fully stocked that the crowns of the trees interlace and form an uninterrupted leaf canopy which completely shelters the ground. *See* Crop.

**Dense canopy.** When three-fourths or more of the ground is shaded.

**Density of canopy.** *See* Canopy density.

**Density of crop.** The degree of completeness of the leaf canopy of the trees that compose it. This is usually expressed by a co-efficient, but may be described by stating the species, the number of stems and their age per unit of area.

**Denudation.** Divesting the soil of its vegetative covering.

**Depôt.** A site on which forest produce is collected.

**Determination of the yield ; or Fixing the possibility.** The calculation or determination of the maximum quantity of material which may, for the time being, be annually removed from a forest consistently with such treatment as shall tend to produce and maintain the greatest constant outturn.

**Devil, Forest.** *See* Forest devil.

**Diameter breasthigh.** The diameter of a tree at  $4\frac{1}{2}$  feet above the ground.

- Diameter or Girth class.** That portion of a crop which is approximately of one diameter or girth.
- Diameter or Girth increment.** The increase in diameter or girth of a tree due to growth.
- Diameter gauge.** *See* Calliper.
- Diameter or Girth limit.** The diameter or girth measured at a given height which defines the class in which trees are to be included for any given purpose.
- Diameter or Girth, Mid.** *See* Mid-diameter ; or Mid-girth.
- Dibble, to.** To sow seed at intervals in holes.
- Direct sowing.** The formation of a wood by the sowing of seed directly on the area which it is proposed to stock.
- Dominant.** A tree which has raised its crown above the level of the surrounding trees. *See* Crown.
- Dominated.** A tree of which the crown is overtopped by the surrounding trees.
- Dormant or Latent buds.** Buds which remain quiescent, showing vitality only under specially stimulating conditions.
- Braudt's method of sample trees.** A modification of the general method of selecting and measuring sample trees in carrying out enumeration surveys.
- Driftwood.** All timber adrift, beached, stranded, sunk or otherwise apparently ownerless or out of control within a waterway or within fixed limits on either side thereof.
- Dry-topped.** Having a dead or partially defoliated crown, as the result of injury or disease. *See* Stagheaded.
- Dunes.** Areas of drifting sand forming, by the action of wind, moving hills of considerable height.
- Easement.** *See* Servitude.
- Enumeration survey.** The counting and classification of one or more species constituting the growing stock. An enumeration survey may be *partial* or *complete* : a partial enumeration survey may be carried out in separate (sample) *plots*, or in *strips* or *lines* (linear survey).
- Epicorm ; or Epicormic branch.** A term applied to those clusters of small branches which make their appearance on the stem of a tree that has been exposed to adverse influences, such as excessive light or heat.
- Epiphyte.** A plant attached to, but not nourished by, another plant.
- Even-aged crop.** A crop of trees of approximately the same age.

**Evergreen tree.** A tree, the leaves of which persist at least for an entire year, so that it is never leafless.

**Evergreen forest.** A forest composed mainly of evergreen trees.

**Examination, Preliminary.** *See* Preliminary examination.

**Exclusive species or tree.** *See* Gregarious species.

**Exotic.** A plant, shrub, or tree introduced from another locality.

**Expectation value.** The present net value of all yields which a property may be able to give.

**Experimental area or plot.** A forest area of known size upon which investigations are carried out for the determination of the growth and behaviour of the growing stock, or to ascertain the effect of various methods of treatment.

**Exploit, to.** To work a forest for its material in accordance with the principles of silviculture.

**Exploitable.** Material that has attained its maximum of usefulness for the owner of the forest.

**Exploitable age.** The age when the main crop in a forest has attained the condition that is required in order to fulfil the purpose for which it is grown. The exploitable age also expresses the time required by the new growth in a crop which is being generated to attain that condition. *See* Rotation.

**Exploitability.** The circumstance of material having attained its maximum of usefulness for the owner of the forest.

**Exploitation.** The operation of working a forest silviculturally for its material.

**Export line or road.** A road or tract used for the purpose of extracting the material from a forest.

**Factor, Form.** *See* Form factor.

**Factors of the locality.** Local conditions influencing forest growth, such as elevation above mean sea level, soil, slope, aspect.

**Faggot.** A bundle composed of small branches of trees, usually used for fuel.

**Faggot wood.** Refuse crown, branch and coppice wood under  $2\frac{1}{2}$  inches in diameter at the larger end.

**False ring.** The layer of wood, less than a full season's growth, and seldom extending around the stem, which is formed when the diameter growth of a tree is interrupted and is resumed during the same growing season.

**Fascine.** A wood faggot used for a specific purpose, such as arresting the movement of sand, or holding up the soil.

**Feeder, Surface.** *See* Surface feeder.

**Felling.** 1. The act of cutting down one or more trees.

2. The area on which trees are being cut.

**Fell, Clean or Clear.** *See* Clear fell.

**Felling, Advance.** *See* Preparatory felling.

**Felling, Clear.** *See* Clear felling.

**Felling, Close or Dark.** *See* Dark or Close felling.

**Felling, Coppice.** *See* Coppice felling.

**Felling cycle.** *See* Felling rotation.

**Felling, Final.** *See* Method of successive regeneration fellings.

**Felling, Improvement.** *See* Improvement felling.

**Felling, Open.** *See* Open felling.

**Felling, Order of.** *See* Order of felling.

**Felling period.** *See* Felling rotation.

**Felling, Preparatory.** *See* Method of successive regeneration fellings.

**Felling, Principal.** *See* Principal felling.

**Felling, Regeneration.** *See* Regeneration felling.

**Felling rotation.** The time which elapses between two successive principal fellings on the same area. Also called *Felling period*, or *Felling cycle*.

**Felling, Secondary.** *See* Method of successive regeneration fellings.

**Felling section.** A sub-division of a felling series comprising a number of age gradations, the ages of which differ by a certain number of years. A certain number of felling sections together thus form one complete series of age gradations, or a felling series.

**Felling, Seed.** *See* Method of successive regeneration fellings, or Uniform Method.

**Felling, Selection.** *See* Selection felling.

**Felling series.** A Working Circle or a part thereof which forms a separate series of age classes.

**Felling, Severance.** *See* Severance felling.

**Felling, Strip.** *See* Method of clear fellings, or Clearances.

**Felling, Systematic.** *See* Systematic fellings.

**Felling, Unregulated or Unclassed.** *See* Unregulated fellings.

**Final felling.** *See* Method of successive regeneration fellings.

**Final yield or outturn.** Material derived from clear or regeneration fellings. Or, the return yielded by the final cutting of the wood, whether the old crop is removed in one cutting or by a number of successive cuttings.

**Finance, Forest.** *See* Forest finance.

**Financial rotation.** The rotation under which a forest yields, if calculated with a given percentage and compound interest, the highest net return.

**Fire conservancy.** The preservation and protection of forests from fire.

**Fire, Crown.** *See* Crown fire; Forest fire.

**Fire, Forest.** A fire which travels over forest land. A forest fire may be a *ground fire*, a *surface fire*, a *stem fire*, a *crown fire*, according as to whether the fire burns in the forest floor, or runs over the undergrowth, or ignites the stems or crowns of the trees.

**Fireline or trace.** A strip of land kept clear of inflammable material and used as a means of protection against the spread of forest fires.

**Firepatrol or watcher.** An officer employed to aid in Fire Conservancy.

**Fire, Surface.** A fire which burns the dead leaves, grass, and other soil covering of a forest. *See* Forest fire.

**Firewood.** 1. Wood for fuel.

2. Wood below a certain diameter or girth.

For statistical purposes, European Forest Research Institutes have agreed to take a girth of 2 decimeters (7·874 inches) as separating timber from firewood or small wood.

**Fixing the possibility.** *See* Determination of the yield.

**Floatable timber.** Timber which is lighter than water.

**Floor, Forest.** *See* Forest floor.

**Flush with the ground.** Close to, or level with, the soil; term applied to coppice fellings.

**Fodder.** Grasses and herbage, as well as the leaves and young shoots of trees and shrubs collected with the purpose of feeding cattle.

**Forest.** 1. An area which for the most part is set aside for the production of timber and other produce, or which is maintained in order to exercise climatic or protective influences on the adjacent country.

2. Any land which has been declared to be reserved forest by notification under a Forest Act.

**Forest, Abnormal.** *See* Abnormal forest; Normal forest.

**Forest administration.** The effective carrying out in detail of a Forest Policy.

**Forest, Canopied.** *See* Canopied forest.

**Forest capital.** The capital which a forest represents. It consists of the forest land, or fixed capital, and the growing stock or producing stock.

**Forest, Closed.** *See* Closed forest.

**Forest, Coppice.** *See* Coppice forest.

**Forest crop.** *See* Crop.

**Forest, Deciduous.** *See* Deciduous forest.

**Forest denudation.** Divesting the soil of its forest covering.

**Forest dépôt.** *See* Dépôt.

**Forest devil.** An implement for extracting stumps and roots.

**Forest, Evergreen.** *See* Evergreen forest.

**Forest expectation value.** *See* Expectation value.

**Forest finance.** The determination and regulation of the value of the forest soil or of the growing stock, or of the forest as a whole, and of the rental derivable from either.

**Forest fire.** A fire which travels over forest land. A forest fire may be a *ground fire*, a *surface fire*, a *stem fire*, a *crown fire*, according as to whether the fire burns in the present floor, or runs over the undergrowth, or ignites the stems or crowns of the trees.

**Forest floor.** The deposit of vegetable matter on the ground in a forest. Litter includes the upper, but slightly decomposed portion of the forest floor; humus the portion in which decomposition is well advanced.

**Forest-grown.** Produced in the forest from self-sown seed.

**Forest guard.** An officer in protective charge of a forest area or of forest works.

**Forest, High.** *See* High forest.

**Forest humus.** Organic matter of decomposed vegetable origin.

**Forest, Indaing.** *See* Indaing forest.

**Forest, Irregular.** *See* Irregular forest.

**Forest in Storey, or Storeyed.** A crop composed of stems of different ages, the crowns of which are arranged in tiers. *See* Storeyed forest method.

**Forest management.** The practical application to an area of the principles of forestry.

**Forest, Mature.** *See* Mature forest.

**Forest mensuration.** The determination of the dimensions, volume, age, and increment of single trees and whole woods, to permit of the calculation of the material standing on a given area, the yield which a wood can give, and the value of single trees, whole woods, and forests.

**Forest, Mixed.** *See* Mixed crop.

**Forest Normal.** A forest which corresponds in every way to the objects of management. The normal state of a forest under a given set of conditions depends chiefly on the presence in it of (i) a normal increment, (ii) a normal distribution of the age classes and (iii) a normal growing stock.

*See* Normal forest.

**Forest nursery.** An area upon which young trees are grown for forest planting. Nurseries may be either *permanent* or *temporary*.

**Forest offence.** Any act punishable under a Forest Act, or under any rules made under an Act.

**Forest organization.** The art of regulating the treatment and working of forests.

**Forest pasture.** The utilization of the herbage and grass of a forest by the admission of cattle.

**Forest per cent ; or Indicating per cent.** The percentage with which the capital, represented by a wood, works at various periods of the wood's life.

**Forest plantation.** Tree growth, established by sowing or planting in a defined area.

**Forest police.** Officers employed to prevent or detect forest offences.

**Forest policy.** The main principles which govern the administration of a forest in the best manner for the attainment of a specified object.

**Forest, Private.** *See* Private forest.

**Forest privileges.** Temporary and defined grants by the owner of the forest to individuals or communities of the use of a forest or of its produce. The grants may be given free or on payment.

**Forest produce.** *See* Forest Act, Chapter I, Section 2.

**Forest products.** All usable material yielded by the forest. Two classes are distinguished, *Major* and *Minor*.



**Forest, Protected.** *See* Forest Act, Chapter IV.

**Forest protection.** Ensuring the security of the forest against unfavourable influences.

**Forest, Pure.** A forest which consists of one species only.

**Forest, Regular.** *See* Regular crop or forest.

**Forest, Riparian or Riverain.** *See* Riparian or riverain forest.

**Forest, Reserved.** *See* Forest Act, Chapter II.

**Forest right.** *See* Servitude.

**Forest, Seedling.** *See* Seedling forest.

**Forest, Semimature.** *See* Semimature forest.

**Forest settlement.** The determination of the limits of a forest, and the definition of the servitudes imposed upon it.

**Forest, State.** *See* State forest.

**Forest, Storeyed or in storeys.** *See* Forest in storey.

**Forest, Tidal.** *See* Tidal forest.

**Forest, Two-storeyed high.** *See* Two-storeyed forest.

**Forest utilization.** The most appropriate method of harvesting, converting, and profitably disposing of forest produce.

**Forest valuation.** The determination of the value of the forest soil; the growing stock or the forest as a whole; and of the rental derivable from the soil or the forest as a whole.

**Forest, Village.** *See* Forest Act, Chapter III.

**Forest, Virgin or Primæval.** *See* Virgin forest.

**Forestry.** The science and art of making the best permanent use of the forest.

**Forestry combined with the rearing of game.** A forest which is primarily maintained as a game preserve. It may be worked under any of the silvicultural systems; but young growth must be carefully fenced and planting is preferable to sowing.

**Form factor.** The proportion which exists between the volume of a tree, or portion of a tree, and that of a cylinder of the same base and height as the tree. The form factor is therefore a co-efficient with which the volume of such a cylinder must be multiplied in order to obtain the volume of the tree.

Various kinds of form factors are used in forestry:—

*Stem from factors*, which refer only to the volume of the stem above ground.

*Tree form factors*, which refer to the stem and branches, omitting root wood.

*Timber form factors*, which refer only to the parts of the tree classed as timber.

According to the height above ground at which the base of the tree is measured, the following kinds of form factors may be distinguished :—

*Absolute form factors*. The diameter is measured at any convenient height above the ground and the factor refers only to the part of the tree above that point.

*True or normal form factors*. The diameter is measured at a constant proportion of the height of the tree, say  $\frac{1}{10}$ th,  $\frac{1}{20}$ th, etc.

*Artificial form factors*. The diameter is measured at the most convenient height from the ground, namely, at breast-height.

**Form factor class**. All trees in a crop so similar in form that the same form factor is applicable in determining their volumes.

**Fringe, Protective**. See Protective belt.

**Frost hardy**. Unaffected by frost.

**Frost tender**. Liable to injury by frost.

**Future outturn or yield**. The amount of usable material or of material of all kinds which given trees upon a given area will contain after a given time.

**Gauge, Diameter**. See Calliper.

**Germinate, to**. To bud or sprout.

**Germinating bed**. An area prepared for sowing by loosening of the soil and the removal of obstructive surface covering.

**Germinating power**. The ability to sprout or bud.

**Germinating test**. To subject a certain number of seeds to conditions which secure quick sprouting in order to accurately ascertain the percentage of good seed and hence its quality.

**Germination**. 1. The act of sprouting or budding.

2. Young forest growth, the result of the local sprouting of seed.

**Girdle, to**. To kill a standing tree by making a circular incision through the bark and alburnum of a tree.

**Girdling officer**. An officer in charge of girdling operations.

**Girth breasthigh**. The girth of a tree at  $4\frac{1}{2}$  feet above the ground.

- Girth class.** *See* Diameter class.
- Girth increment.** *See* Diameter increment.
- Girth limit.** *See* Diameter limit.
- Girth measure, Quarter.** *See* Quarter girth measure.
- Girth, Mid.** *See* Mid-diameter.
- Glade.** A portion of a forest in which the trees are scattered, and where the undergrowth consists of grass or herbage.
- Guarled.** Knotty; full of knots.
- Gradation of ages.** The representation of age classes in a forest crop, *See* Age gradations.
- Grazing ground.** An area which furnishes pasture for cattle.
- Gregarious species or tree.** Trees which have a tendency to form pure crops of their own species. Such species may also be called *exclusive*.
- Ground cover.** The shade afforded by small plants growing in a forest, except young trees; *i.e.*, ferns, mosses, grasses and weeds.
- Ground fire.** A forest fire which burns in the forest floor. *See* Forest fire; Forest floor.
- Group method.** A modification of the method of successive regeneration fellings by which the exploitable crop is felled in small groups with a view either to induce regeneration or to favour the growth of established seedlings.
- Growing stock.** All the living material actually standing in a forest or in part of a forest at a certain time. *See* crop.
- Growth.** The material produced on a tree, or in a given area, in a certain time.
- Growth, Advance.** *See* Advance growth; Second growth.
- Grub up, to (applied to stumps).** To dig up by the roots with an instrument.
- Guard, Forest.** *See* Forest guard.
- Guide line.** A narrow path, cleared on either side of a fire line or trace, before the latter is burnt.
- Habit.** The mode of life or behaviour of a tree in the forest.
- Habitat.** The locality in which a tree finds the conditions of soil and climate which it requires.
- Hammer, Marking.** *See* Marking hammer.
- Handle, to (or trim).** To remove buds or side shoots from young plants.

**Hardwoods.** Trees which possess a well defined heartwood.

**Hardy species.** Species which are capable of resisting at all ages injurious climatic influences. *See* Delicate species, Frost hardy.

**Heartshake.** Cracks in the centre of timber which may be due to excessive age, or to an unfavourable condition of soil. *See* Shakes.

**Heartwood.** The inner and older zones of wood, usually distinguished from the immature sapwood by an actual change in the tissues.

**Heartwood, Imperfect or Incomplete.** The absence of distinction in colour and density between the sapwood and heartwood.

**Heavy thinning.** The removal of a part of an immature crop including a proportion of the dominant stems. *See* Thinnings.

**Heel, to.** To store young trees for planting.

**Height class.** That portion of a crop which is approximately of the same height.

**Height-growth.** The increment in height of a tree. *See* Increment.

**Height increment.** The yearly growth of a tree in height.

**Herbage.** A low growth of small plants which never become woody.

**High forest ; or Seedling forest.** A forest composed wholly or mainly of trees grown from seed. *See* Crop.

**High forest, Regular.** *See* Method of successive regeneration fellings.

**High forest with reserves system.** The whole crop standing on a portion of the area to be treated is felled in one operation with the exception of a few trees which are left to grow to a larger size. The entire area is in this way passed over once during the rotation.

**Hold over, to.** To leave a certain number of trees uncut for a period, usually a second rotation, after the crop itself is reproduced. *See* Leave standing, to reserve.

**Humus.** The comminuted earth resulting from vegetable decomposition. *See* Forest Humus.

**Humus, Acid or Sour.** *See* Acid humus.

**Humus, Raw.** *See* Raw humus.

**Hundershagen's method.** A method of determining the yield of a forest, based on the assumption that the real yield must bear the same proportion to the real growing stock, as that existing between the normal yield and normal growing stock.

**Husk, to.** To strip off the external integument or covering of the fruit or seeds of plants.

**Hybrid.** Plants resulting from cross fertilization of two species.

**Hygrometric state of air.** The degree of moisture to be found in the air; the *absolute* or *relative* humidity of the atmosphere.

**Hygroscopicity of soil.** The facility with which a soil spontaneously absorbs and retains moisture.

**Hypsometer.** An instrument for measuring the height of a tree.

**Imperfect Heartwood.** *See* Heartwood, Imperfect.

**Impermeable (of soil).** Soil which does not permit the passage of water.

**Impoverishment (of the soil).** Alteration of those physical properties or constituents of the soil which are beneficial to plant life.

**Impregnation (of timber).** The filling of the pores of timber with antiseptic solutions or preservatives.

**Improvement felling.** A provisional operation undertaken to improve the growth and composition of an existing crop by means of the removal of individuals impeding the development of others of greater promise than themselves; it may thus include the removal of mature trees of the principal species in order to hasten the establishment of a more vigorous crop, as well as the removal of trees of other species, which by their cover render the extension of more valuable kinds impossible.

**Income, Rotation of highest.** *See* Rotation of highest income.

**Incomplete crop.** A crop in which there is not a sufficient number of individuals, so that the trees form an interrupted leaf canopy which only partially shelters the ground.

**Incomplete heartwood.** *See* Heartwood, Incomplete.

**Increment.** The increase due to growth in a given time in the height, diameter (and girth), or volume of material of a tree or crop. Or, the material produced on a tree, or a given area, in a given time. *See* Annual increment; Current annual increment; Mean or Average annual increment; Diameter increment; Height increment.

**Increment, Annual.** *See* Annual increment.

**Increment, Average annual.** *See* Increment, Mean annual.

**Increment borer.** *See* Borer, Increment.

**Increment, Current annual.** *See* Current annual increment.

**Increment, Diameter.** *See* Diameter increment.

**Increment, Girth.** *See* Diameter increment.

**Increment, Height.** *See* Height increment.

**Increment, Mean annual.** That which is obtained by dividing the increment added during a given period by the number of years in the period. If the mean annual increment is calculated for a portion of the total age, it is called the "*periodic mean annual increment*"; if for the total or final age of the tree or wood, it is called the "*final mean annual increment*."

**Increment (volume) per cent.** The proportion which exists between the total volume of a tree or wood at a certain age and the increment added during the year before or the following year.

**Increment, Periodic.** *See* Periodic increment.

**Increment, Periodic mean annual.** *See* Periodic mean annual increment.

**Increment, Price.** *See* Price increment.

**Increment, Quality.** *See* Quality increment.

**Increment, Total.** *See* Total increment.

**Increment, Volume.** The yearly growth of a tree in volume.

**Indaing forest.** A dry deciduous forest in Burma chiefly stocked with "In" (*Dipterocarpus* sp.).

**Indicating per cent.** *See* Forest per cent.

**Indigenous.** A tree growing in its original habitat. *See* Habitat.

**Intermediate yield.** All material from thinnings or from any cutting not intended to invite or assist reproduction. *See* Crown.

**Intermittent working.** When the final yield is obtained at irregular intervals.

**Interrupt the cover.** To form gaps and openings in the leaf canopy of a forest by the removal of trees constituting the crop.

**Interrupted crop.** A crop composed of trees, whose crowns do not interlace and so form an irregular leaf canopy which only partially shelters the ground.

**Interrupted leaf canopy.** When the crowns of the trees are detached and isolated. *See* Canopy density; Park forest.

**Irregular crops.** A crop formed by trees of very various ages and sizes.

**Irregular forest.** Uneven-aged forests. *See* Uneven-aged crop.

**Isolate, to.** To place selected trees in a free position by removing all surrounding trees which threaten to interfere with them.

**Jhoom; or Jhum.** A method of raising agricultural crops consisting in cutting down the forest, burning it and using the ashes as manure

for fields made on the spot. The following are the best known synonyms :—

Berar . . . . .	Dhaia.
Bombay . . . . .	Dahe.
Bengal and Assam . . . . .	Jhum, Katikata, Pain.
Burma . . . . .	Taungya.
Madras . . . . .	Ponakad, Podu.
Mysore, Coorg and parts of Madras . . . . .	Kumri, Takul.
Mysore and Malabar . . . . .	Tekal.
Central Provinces . . . . .	Dahya, Bewar.
United Provinces (Hills) . . . . .	Khil.

**Judeich's method; or "Judeich's Bestandswirthschaft."** A method of determining and regulating the yield of a forest, based on a consideration of the special requirements of each wood constituting the whole forest.

**Kiln, Charcoal.** An oven for calcining wood so arranged as to permit of the regulation of the admission of atmospheric air.

**Kiln, Seed.** A chamber used in order to separate seed from cones or pods by means of hot air.

**Knottiness.** A defect in wood due to the abnormal direction of the fibres caused by branches which have been enclosed in the wood. *See* Gnarled.

**Krempe.** An implement used by workmen in dragging or sliding timber along the ground.

**Latent buds.** *See* Dormant buds.

**Layer.** An undetached branch partially buried in soil, with the object of causing it to strike root and thus develop into a new tree after separation from the mother plant.

**Leading shoot; or Leader.** The uppermost portion of the principal axis or main trunk of a tree: the strongest topmost shoot which tends to form a continuation of the main stem.

**Leaf canopy.** The mass of foliage formed by the crowns of a collection of trees in a forest.

**Leaf canopy, Interrupted.** *See* Interrupted leaf canopy.

**Leaf-fodder.** The foliage and young shoots of woody plants collected for cattle fodder. *See* Fodder.

**Leaf litter.** That portion of the forest floor which is not in an advanced stage of decomposition. *See* Forest floor.

**Leaf mould.** That portion of the forest floor in which decomposition is well advanced. *See* Humus.

**Leave standing, to.** To leave trees uncut for a period, usually a second rotation, after the main crop is reproduced. *See* Hold over, to; Reserve, to.

**Length, Merchantable.** *See* Merchantable length.

**Lift, to (a seedling).** To pry up seedlings in the seed bed, so that they may be pulled up for transplanting.

**Light demanding.** A species which thrives best under the influence of direct light.

**Light requirement.** The necessary amount of light for the most favourable development of a species. *See* Light demanding; Shade bearing.

**Light screen.** A screen or frame for the partial shading of a seed bed.

**Limit, Diameter.** *See* Diameter limit.

**Limit, Height.** *See* Height limit.

**Line, Compartment.** *See* Compartment line.

**Line, Export.** *See* Export line.

**Line, Fire.** *See* Fire line.

**Line, Guide.** *See* Guide line.

**Line out, to.** To transplant seedlings from the seed bed to rows in the forest nursery.

**Linear enumeration survey.** To estimate the quality and quantity of the growing stock by counting and classifying the stems on lines of known width and length run through the crop. *See* Enumeration survey.

**Litter.** *See* Leaf litter.

**Locality.** An area considered with reference to its forest producing power.

**Locality class.** Localities with similar forest producing power.

**Locality, Factors of the.** *See* Factors of the locality.

**Locality, Quality of the.** *See* Quality of locality.

**Locate, to (a coupe).** To fix the limits and position of the coupes and the order in which the fellings should be made.

**Log.** A piece of wood which retains the full thickness of the stem.

**Logging.** To convert a stem into lengths.

**Longevity (of trees).** 1. The length or duration of life of a tree.



2. The length of time during which trees remain healthy and sound ; or at which the reproductive power of the species either by seed or by coppice shoots ceases to be in an efficiently active state.

**Loosening the soil.** The cultivation of the soil for the reception of seed. The loosening of the soil may consist in merely *wounding* the soil, or in *moderately deep* or *deep* cultivation. *See* Wounding.

**Lop, to.** To cut off one or more branches of a tree ; the operation not being done for the benefit of the tree as in pruning.

**Low cover.** The shade afforded by small plants not being a portion of the forest crop, such as ferns, mosses, grasses, and weeds.

**Lower storey.** *See* Two-storeyed forest.

**Major produce.** Timber and firewood.

**Major or Primary part of growing stock.** The dominant trees of a crop which form the crop of the immediate future. *See* Crown.

**Major products.** *See* Major produce.

**Management.** *See* Exploitation.

**Management, Forest.** *See* Forest management.

**Map, Stock.** *See* Stock map.

**Marking trees for fellings.** The imposition on standing trees of a recognised sign denoting that they are for removal.

**Marking hammer.** An implement employed to impose on timber, standing or felled, a mark denoting treatment or ownership.

**Mast.** The fruit of forest trees.

**Mast-year.** A good seed year.

**Mature forest.** A forest in which the crop has reached the age of maturity. *See* Maturity ; Exploitable age.

**Maturity.** 1. The age at which the tree after its height has culminated, attains its maximum in girth measurement and begins to become unsound and to deteriorate.

2. The age at which a tree becomes exploitable.

**Mean annual increment.** *See* Increment, Mean annual.

**Mensuration, Forest.** *See* Forest mensuration.

**Merchantable length.** The total length of that portion of the stem which can be used under given conditions.

**Merchantable timber.** That portion of a tree which can be utilised as timber.

**Merchantable volume.** The total volume of that portion of the tree which can be used under given conditions.

**Method by area.** Basing the Working-Plan on the area of the forest. *See Possibility.*

**Method by volume.** Basing the Working-Plan on the volumetric yield of the forest. *See Possibility.*

**Method by area and volume combined.** A combination of the method by volume and the method by area. *See Possibility.*

**Method of clearances or of clear fellings.** *See Clear felling, Method of.*

**Method, Coppice.** *See Coppice system.*

**Method, Coppice with standards.** *See Coppice with standards system.*

**Method, Group.** *See Group method.*

**Method of high forest with reserves.** *See System of high forest with reserves.*

**Method of improvement fellings.** *See Improvement fellings.*

**Method of pastoral treatment.** The planting of trees in groups or lines on pasture lands. Such trees yield a certain return, besides improving the value by keeping out cold or dry winds, and by affording shelter to the cattle.

**Method of selection.** *See Selection method.*

**Method of selection coppice.** *See Selection coppice method.*

**Method of simple coppice** *See Coppice system.*

**Method of successive regeneration fellings.** In this method instead of the entire crop being removed from the area exploited in a single operation, the removal takes place gradually in successive fellings made from time to time as the new growth requires less and less shelter from the parent crop. In addition to this gradual exposure of the new growth, the young crop as it grows up, is fostered by cleanings, thinnings, etc. The successive fellings, made in connection with this method, are called *preparatory, seed, secondary and final*. The first and second may be either *close* or *open*. This method is sometimes called "*the method of natural regeneration and of thinnings*"; sometimes "*the shelter wood compartment system*" or "*high forest compartment system*"; and sometimes the "*uniform method*." A forest treated by this method is sometimes called a "*regular high forest*."

**Method of storeyed forest.** *See Storeyed forest method.*

**Method of two-storeyed forest.** *See* Two-storeyed forest.

**Method, Pollard.** *See* Pollard method.

**Mid-diameter or girth.** The diameter or girth measured half way along the length of a stem or log.

**Minor produce or products.** All forest products except timber and fire-wood.

**Minor or Secondary part of wood.** *See* Intermediate yield; and Crown.

**Mixed crop or forest or wood.** A crop or forest composed of trees of two or more species intermixed. The various species composing a mixed forest may be distinguished into three several classes—*principal, auxiliary, and accessory.*

**Money yield tables.** *See* Yield tables, Money.

**Mother tree.** A tree which provides the seed for natural reproduction.

**Mould.** *See* Humus.

**Mould, Leaf** *See* Leaf mould.

**Mould, Vegetable.** *See* Vegetable mould.

**Mound planting.** A method of planting in which the seeds or young trees are planted on mounds, ridges, or hills.

**Natural pruning.** The clearing of the stem through the death and fall of side branches.

**Natural regeneration or reproduction.** The renewal of a forest by self-sown seeds, or by stool or root shoots.

**Net yield.** The clear profit obtained from a forest after deducting all working expenses. The outturn of a forest.

**Normal.** The word "normal" applied to increment, growing stock, and present and future yield signifies that which may reasonably be expected by correct management, taking into consideration the quality of the locality, as well as any extraordinary disturbances which may be foretold. *See* Forest, Normal.

**Normal forest.** When in addition to being constituted of a complete series of growths of all ages from the seedling to the exploitable tree, each age-class occupying an equal area, a forest is completely stocked, and the growth is proportionate to the fertility of the soil. *See* Forest, Normal.

**Normal form factor.** Form factors obtained by measuring the diameter (or girth) at a constant proportion of the height of a tree, say,  $\frac{1}{10}$ th,  $\frac{1}{20}$ th, etc. *See* Form factor.

**Normal yield.** The yield which a normal forest can permanently give. *See* Normal forest.

**Notch planting : or Notching.** A method of planting by which the plant, while it is still a small seedling and before it has developed side roots of any length, is placed into a notch made with a hatchet or spade.

**Nurse.** A tree which fosters the growth of another in youth.

**Nurse crop.** A crop of trees grown for the purpose of fostering the growth of others.

**Nurse, to.** To shelter or protect against adverse influences.

**Nursery.** *See* Forest nursery.

**Nursery-grown.** Grown in a forest nursery.

**Nursery, Permanent.** *See* Permanent nursery.

**Nursery, Temporary.** *See* Temporary nursery.

**Ocular estimates (of volume).** To determine the volume of standing trees by eye-estimate.

**Offence, Forest.** *See* Forest offence.

**Open (applied to woods).** A term applied to woods in which the crowns of the trees do not interlace but form an interrupted leafy canopy which only partially shelters the ground. *See* Canopy density.

**Open canopy.** When the crowns of the trees hardly meet and thus do not touch one another at every point, and less than half of the ground is shaded.

**Open felling.** The removal of a certain number of stems of a crop, so that appreciable gaps and openings appear between the trees left standing.

**Open woods.** *See* Open ; Wood, Open.

**Opening.** *See* Glade.

**Operations, Cultural.** *See* Cultural operations.

**Operations, Plan of.** *See* Plan of operations.

**Order of felling.** The determination for each year of a given period of the locality of the coupes in a forest.

**Organization, Forest.** *See* Forest organization.

**Outturn.** The net yield of a forest or such portion of the gross yield as has been or will be utilised.

**Outturn, Future.** *See* Future outturn.

**Overcrowded; or Overstocked.** The wood is so densely stocked as to

prevent a sufficient development of the crowns of the individuals constituting the crop.

**Overmature.** 1. A tree or crop in which, as the result of age, growth has almost entirely ceased, and decay and deterioration have begun.

2. A tree or crop which has passed the exploitable age or size.

**Overtop.** A tree, the crown of which stands above that of the surrounding trees.

**Overtopped.** Having the crown shaded from above.

**Overwood.** *See* Two-storeyed forest.

**Pannage.** The driving of swine into the forest to feed on the mast.  
*See* Mast.

**Parent tree.** *See* Mother tree.

**Park forest.** When there are appreciable gaps and openings between the trees and shade occurs only in isolated patches. *See* Canopy density.

**Partial sowing.** When sowing is restricted to a portion of the area to be stocked. *See* Sowing in strips, patches, holes, trenches, mounds.

**Pastoral treatment method.** *See* Method of pastoral treatment.

**Pasture.** *See* Forest pasture.

**Pasture ground.** *See* Grazing ground.

**Patch method.** The clear cutting of small patches to invite reproduction by self-sown seed from the surrounding forest. *See* Clear felling, Method of.

**Patch sowing.** Sowing of forest seed in small plots. *See* Sowing in patches.

**Per cent., Forest.** *See* Forest per cent.

**Per cent., Increment.** *See* Increment per cent.

**Per cent., Indicating.** *See* Forest per cent.

**Period.** A sub-division of a rotation.

**Period, Conversion.** *See* Conversion period.

**Period, Felling.** *See* Felling rotation.

**Period, Preparatory.** *See* Preparatory period.

**Period, Regeneration.** *See* Regeneration period.

**Period, Transformation.** *See* Transformation period.

**Periodic block.** The part of a forest set aside to be treated during a period or number of years into which the rotation is divided.

**Periodic increment.** The increment added during a number of years or a period.

**Periodic mean annual increment.** When the mean annual increment is calculated for a portion of the total age. *See* Increment, Mean Annual.

**Permanent nursery.** A nursery worked continuously for the supply of plants required year after year for extensive planting operations.

**Physical rotation.** That age which is most favourable for the natural regeneration of a species, taking into consideration the conditions of the locality and the silvicultural system. In the case of protection forests, parks, etc., the physical rotation may be taken as that which coincides with the natural lease of life of the trees.

**Pit planting or sowing.** A method of placing seeds or seedlings in excavations, which may be either narrow pits with steep sides, or shallow sloping hollows.

**Plan of operations.** A table showing under the various heads of forest management the order and nature of the operations to be carried out during one or more years. Such plans are based on the provisions of a regular working plan where these exist, otherwise on general silvicultural principles.

**Plan, Planting.** *See* Planting plan.

**Plan, Working.** *See* Working plan.

**Plant, Seedling.** *See* Seedling plants.

**Plantation.** *See* Forest plantation.

**Plantation, Teak taungya.** *See* Cutch or teak taungya.

**Planting.** The method of forming a wood by means of plants which have been raised elsewhere.

**Planting, Ball.** *See* Ball planting.

**Planting, Basket.** *See* Basket planting

**Planting by tufts.** Planting with two or more transplants together in the same patch, pit or mound.

**Planting in holes.** The plant while it is still a small seedling is put into a deep narrow hole made in the ground with a stake or peg.

**Planting in lines or rows.** A method of planting in which the young trees are placed in lines or rows, the distance between the lines being greater than between the young trees in the rows.

**Planting in notches.** *See* Notch planting.

**Planting in pits.** *See* Pit planting.

**Planting in quincunx.** A method of planting in which the plants are placed at the four corners of a square and a fifth in the centre.

**Planting in rectangles.** When transplants are placed at the four corners of a rectangle.

**Planting in ridges.** A method of planting on wet ground in which the young trees are planted on ridges or mounds.

**Planting in squares.** When transplants are placed at the four corners of a square.

**Planting in trenches.** The young plants are placed in small excavations or trenches, which serve to catch the rain water.

**Planting in triangles.** When transplants are placed at the three corners of an equilateral triangle.

**Planting on mounds.** *See* Mound planting.

**Planting plan.** A detailed scheme for forest planting on a given area.

**Planting, Ridge.** *See* Ridge planting.

**Plot, Experimental.** *See* Experimental area.

**Plot, Sample.** *See* Sample plot.

**Pole.** A young tree from the time when the lower branches begin to fall off, up to the time when the principal height is reached. Poles are termed *small* or *large* according as they are under or over two feet in girth. *See* Stages of growth of trees.

**Pole crop or forest.** A forest crop consisting of poles.

**Police, Forest.** *See* Forest police.

**Policy, Forest.** *See* Forest policy.

**Pollard.** A tree whose crown has been cut back to invite the production of shoots.

**Pollard, to.** To invite the production of shoots at the top of the tree by cutting back the crown. The crown may be removed either leaving the main stem intact, or cutting it off at a certain height from the ground. In the latter case the system is frequently called topping.

**Pollard method.** In this method the exploitable material is obtained by periodically pollarding the trees constituting the crop, regeneration being obtained from shoots produced at the top of the tree. *See* Pollard, to.

**Possibility.** Theoretically the possibility is the productive power of a wooded area expressed in quantity of material. Practically it is taken to mean the quantity of material which, without infringing the rules of forestry, may be felled in a forest, annually or periodically

for the time being. The possibility may be applied either by area, by number of trees, or by volume.

**Possibility, Fixing the.** *See* Determination of the yield.

**Possibility, Potential.** *See* Potential possibility.

**Possibility, Actual or Present.** The annual yield in material of which a forest is susceptible under existing physical, legal and other conditions affecting it.

**Potential possibility.** The annual yield in material of which a forest is susceptible when maintained at its highest possible limit of productiveness.

**Predominant.** Trees with an exceptionally vigorous crown. *See* Crown.

**Predominating.** A tree with a crown raised well above the level of the surrounding trees. *See* Crown.

**Preliminary examination (of a forest).** A reconnaissance of a forest in order to gain a general knowledge of all facts likely to be useful in determining the future plan of management.

**Preparatory fellings.** *See* Method of successive regeneration fellings.

**Preparatory period.** The length of time required in order to constitute the forest according to the normal condition is sometimes called a *preparatory period*.

**Present possibility.** *See* Possibility, Actual.

**Pressler's borer.** *See* Borer, Increment.

**Price increment.** The increment caused by a change in the price of forest produce generally, independently of an improvement in quality.

**Prick out, to.** To transplant small seedlings in a nursery.

**Primæval forest.** *See* Virgin forest.

**Primary part of growing stock.** The dominant trees of a forest crop. *See* Crown ; Major part of the growing stock.

**Principal fellings.** The methodical removal of exploitable trees according to a pre-arranged plan. *See* Final yield.

**Principal produce.** The material for the production of which a forest is primarily maintained.

**Principal species.** That kind of trees to produce which the management of a forest is primarily designed. *See* Mixed crop.

**Private forest.** A forest which is not the property of a State or Government.



- Privileges, Forest.** *See* Forest privileges.
- Produce, Accessory.** *See* Accessory produce.
- Produce, Forest.** *See* Forest produce.
- Produce, Major.** *See* Major produce.
- Produce, Minor.** All forest products except timber and fuel such as grass, honey, gums, etc.
- Produce, Principal.** *See* Principal produce.
- Producing stock.** The growing crop or material actually standing on a given area at a certain time.
- Products, Forest.** *See* Forest products.
- Products, Major.** *See* Major produce.
- Products, Minor.** *See* Minor produce.
- Protected forest.** *See* Forest Act, Chapter IV.
- Protection forest.** A forest whose chief value is to regulate stream flow, prevent erosion, hold shifting sand, or exert any other beneficial effect on the adjacent country.
- Protective belt.** A forest which is maintained as a protection against wind, snow, or other physical forces. *See* Windbreak.
- Protective fringe.** *See* Protective belt.
- Provisional or Temporary treatment.** Operations to which the existing crop is subjected for a time so as to bring it to the condition requisite for the application of a new method of treatment. *See* Improvement fellings; Conversions; Transformations.
- Prune, to.** To remove superfluous branches for the benefit of the tree.
- Pruning, Natural or Self.** *See* Natural pruning.
- Puddle, to.** To dip the roots of young trees in thin mud.
- Pure crop, or forest or wood.** A crop formed of a single species.
- Quality increment.** The increase in the value per unit of volume, independently of any alteration in the general price of forest produce.
- Quality class (of locality).** *See* Locality class.
- Quality of locality.** The nature of the soil and climate, the latter being governed by the situation. The sum total of these factors represents the *quality* or *yield capacity* of the locality.
- Quarter girth measure.** The calculation of the volume of round timber on the assumption that the sectional area is equal to the square of a quarter of the girth.
- Quincunx planting.** *See* Planting in quincunx.

**Radial shake.** A fault in timber due to meteorological causes. *See* Shakes.

**Range.** A territorial executive forest charge: a sub-division of a charge of control.

**Raw humus.** An accumulation of leaves, needles, weeds, and moss which has remained undecomposed.

**Reafforestation.** 1. To re-establish forest growth either by natural or artificial means.

2. To re-establish as forest, land disforested under a Forest Act.

**Regenerat (e)—ion.** To renew a forest crop by natural or artificial means.

**Regeneration, Artificial.** *See* Artificial regeneration.

**Regeneration felling.** The removal of exploitable trees with the view of inviting or assisting natural reproduction. *See* Method of successive regeneration fellings.

**Regeneration, Natural.** *See* Natural regeneration.

**Regeneration period.** The space of time required for the renewal of the growing stock.

**Regular crop or forest.** A forest in which the leaf canopy is complete and is formed by trees of approximately the same age and size.

**Regular high forest.** *See* Method of successive regeneration fellings.

**Rental of the soil.** The annual net return of the soil.

**Rental value (of a forest).** The capital sum which would yield a rental equal to that which a forest is capable of yielding.

**Report, Working plan.** *See* Working plan report.

**Reproduction.** 1. The process by which a forest is renewed.

2. Forest regrowth: seedlings, shoots or suckers.

**Reproduction, Artificial.** *See* Artificial reproduction: Planting.

**Reproduction, Natural.** *See* Natural regeneration.

**Reserve, to.** To leave trees uncut for a period, usually one or more rotations, after the new crop is assured.

**Reserve (trees).** The trees permitted to remain after a clear felling. *See* High forest with reserves system: Standard.

**Reserved forest.** *See* Forest Act, Chapter II.

**Resin or Gum blaze.** A wound inflicted in the bark of trees to induce the flow of resin or gum.

**Resin or Gum tapping.** The process by which resin or gum is induced to flow from trees.

- Restock.** To renew a forest either by natural or artificial means.
- Restorations.** Operations undertaken in order to reconstitute or improve the forest crop without altering the method of treatment or the mode of reproduction.
- Rhizome.** The underground stem of bamboos.
- Ride.** Open cut boundary lines between compartments.
- Ridge planting.** A method of planting on wet ground, in which the young trees are planted on ridges.
- Right.** *See* Servitude.
- Rights, Commutation of.** *See* Commutation of rights.
- Right-holder.** The possessor of a claim on the property of another which diminishes the full enjoyment thereof.
- Ring, to.** To kill a standing tree by making a circular incision through the bark and alburnum of a tree. *See* Girdle, to.
- Ring, Annual.** *See* Annual ring.
- Ring, False.** *See* False ring.
- Riparian or Riverain forest.** A forest which owes its existence or condition to its situation on the banks of a river, lake, or swamp.
- Ripe (for the axe).** *See* Exploitable.
- Road, Export.** *See* Export line or road.
- Rock.** The geological formation underlying the soil which affects the forest by its outcrop, composition, the rapidity of its disintegration, etc.
- Rooting, Shallow.** Shallow rooting.
- Roots, Adventitious.** *See* Adventitious roots.
- Rootshoot ; or Sucker.** An aerial shoot springing from a root.
- Rotation.** The number of years determined on between the regeneration of the forest crop and its arrival at exploitable age. The following classes of rotation are distinguished :—
- Financial rotation.*
- Physical rotation.*
- Rotation of the highest income.*
- Rotation of the greatest volume production.*
- Technical rotation.*
- Rotation, Felling.** *See* Felling rotation.
- Rotation, Financial.** *See* Financial rotation.
- Rotation of the greatest volume production.** The rotation under which a forest yields the greatest quantity of material per unit of

area ; its length coincides with the year in which the mean annual volume increment culminates.

**Rotation of the highest income.** The rotation which yields the highest income, calculated without interest and irrespective of the time when the items of income occur.

**Rotation, Physical.** *See* Physical rotation.

**Rotation, Technical.** *See* Technical rotation.

**Roughly squared timber.** Timber with an approximately rectangular cross section.

**Round timber ; or Wood in the round.** Timber unconverted save for convenience of transport, but with a view to its ultimate utilization.

**Row planting.** *See* Planting in lines.

**Sale value.** The price which can be realised by the sale of property.

**Sample area or plot.** An area of known size selected as representative of a given forest. *See* Enumeration survey.

**Sample tree.** A tree which is representative of a certain class.

**Sand dune.** *See* Dunes.

**Sapling.** A young tree up to the time when the lower branches begin to dry ; generally a tree 3 feet or over in height, and less than 4 inches in diameter breast-high. *See* Stages of growth of trees.

**Sap wood.** The outer and younger zones of wood.

**Sawn timber.** Timber converted by the use of the saw with at least two parallel faces.

**Scantling.** Sawn timber of small dimensions.

**Screen, Light.** *See* Light screen.

**Screen, Shade.** *See* Light screen.

**Scrub.** Inferior forest growth consisting chiefly of small or stunted trees and shrubs.

**Seasoning.** To prepare for use by drying or hardening.

**Secondary fellings.** *See* Method of successive regeneration fellings.

**Second growth.** Forest growth which comes up naturally after cutting, fire, or other disturbing cause.

**Section, Felling.** *See* Felling section.

**Seed bearer.** A tree left standing for the purpose of providing seed for natural regeneration.

**Seed bed.** A specially prepared area, usually in the forest nursery, for the raising of seedlings.

**Seed fellings.** *See* Method of successive regeneration fellings.

- Seed forest.** A forest composed wholly or mainly of trees raised from seeds.
- Seed kiln.** *See* Kiln, seed.
- Seed, Self-sown.** *See* Self-sown seed.
- Seed tree.** *See* Seed bearer.
- Seed year.** A year in which a given species bears seed abundantly.
- Seedling.** A young plant which results directly from the germination of a seed. *See* Stages of growth of trees.
- Seedling crop.** A forest crop from the germination of the seeds to the time when the newly developed branches meet.
- Seedling forest.** Or high forest. A crop composed of trees which have sprung from seed.
- Seedling plants.** Seedlings which are taken direct from the seed bed to the forest.
- Seedling tree.** A tree of any age sprung from seed and not from a coppice shoot.
- Selection coppice method.** Cutting periodically the strongest shoots, or those exceeding certain prescribed dimensions, out of each coppice clump. The regeneration fellings in this method may be called "*Selection coppice fellings.*"
- Selection felling.** The methodical removal of the exploitable trees in a forest, either singly or in groups, with a view to producing from self-sown seedlings a new crop irregular in its constitution.
- Selection method.** Or regeneration fellings by the selection method. Removing in a methodical manner, in accordance with silvicultural requirements so as not to exceed the possibility, the exploitable trees in a forest by felling them here and there, either singly or in groups.
- Self pruning.** *See* Natural pruning.
- Self-sown seed.** Seed sown by any agency other than man.
- Semimature forest.** A forest in which height growth is complete, but diameter growth has not begun to fall off.
- Series, Felling.** *See* Felling series.
- Servitude.** A claim possessed by a person, community or property to diminish the full enjoyment of the property of another.
- Settlement, Forest.** *See* Forest settlement.
- Severance felling.** A cleared strip of varying breadth, by which two woods are separated in the general direction of the cuttings, at a place where some time after regular fellings are to commence.

**Shade bearer** or bearing. A species which tolerates the cover of other trees.

**Shade enduring.** *See* Shade bearer.

**Shade screen.** *See* Light screen.

**Shakes.** Faults in timber (of the nature of cracks) due to excessive age, cold, frosts, sudden changes of temperature, sunstroke, or to a too dry or too wet condition of soil. *See* Cupshakes; Heart shakes; Radial shakes; Star shakes.

**Shallow rooting.** When the root system does not extend far below the surface of the ground.

**Shelter belt or wood.** *See* Protective belt.

**Shelter wood compartment system.** *See* Method of successive re-generation fellings.

**Shelter wood group system.** *See* Group method.

**Shelter wood selection system.** *See* Selection method.

**Shoot.** A young branch or growth.

**Shoot, Adventitious.** *See* Adventitious buds.

**Shoot, Coppice.** *See* Coppice shoot.

**Shoot, Leading.** *See* Leading shoot.

**Shoot, Stool.** *See* Stool-shoot.

**Shrub.** A small woody plant which branches at or near the ground.

**Shrub, Arborescent.** A shrub that has a certain clear length of stem and thus assumes to some degree the habit of a tree.

**Simple coppice method.** *See* Coppice system, simple.

**Size class.** *See* Diameter class.

**Slope.** The gradient of the surface of the ground. The following terms are used in forest description to define the slope :—

Level	. . . . .	0 to 5 %	=	0° to 3·0°
Gentle	. . . . .	5 to 15 %	=	3·0° to 8·5°
Moderate	. . . . .	15 to 30 %	=	8·5° to 16·5°
Steep	. . . . .	30 to 50 %	=	16·5° to 26·5°
Very steep	. . . . .	50 to 100 %	=	26·5° to 45·0°
Precipitous	. . . . .	Over 100 %	=	Over 45·0°

**Snag.** 1. A short, sharp or rough branch.

2. An uprooted tree resting in the bed of a stream.

**Snow break.** 1. A tree or portion of a tree broken by snow.

2. A shelterbelt maintained as a protection against snow.

**Soft wood.** 1. Timber with no definite heart wood.

2. Trees of rapid growth and short duration.

**Soil.** The uppermost layer of the crust of the earth often more or less dark in colour from the admixture of vegetable matter, and which is (in most cases) the product of the disintegration of the underlying rock or subsoil. In forest description soils may be described according to their (i) origin and composition, (ii) depth, and (iii) moisture.

**Soil cover.** *See* Surface cover.

**Soil covering.** *See* Leaf litter.

**Soil cost value.** The sum of all expenses incurred in acquiring the land and rendering it fit for forest culture.

**Soil expectation value.** The sum of the present values of all returns expected from the soil in the course of time, less the present value of all expenses which must be incurred to obtain those returns.

**Soil, Hygroscopicity of.** *See* Hygroscopicity of soil.

**Soil, Loosening the.** *See* Loosening the soil.

**Soil rental.** *See* Rental of the soil.

**Soil sale value.** The value which the soil realises in the open market.

**Soil, Top.** *See* Humus.

**Soil, Vegetable.** *See* Vegetable soil.

**Sowing at stake.** To sow seed at the base of stakes which are used to mark the position of the seedling.

**Sowing broadcast.** When seed is distributed over the whole area to be stocked.

**Sowing, Direct.** *See* Direct sowing.

**Sowing in furrows.** The sowing of seed in strips consisting of one or two furrows made with a plough, hoe or pick.

**Sowing in mounds.** The sowing of seeds on prepared mounds or ridges.

**Sowing in notches.** The sowing of seed in clefts made by a spade or similar instrument.

**Sowing in patches.** The sowing of seed in small seed-beds made in lines or scattered over the area.

**Sowing in pits.** The sowing of seed below the level of the ground in small excavations or pits which serve to retain moisture.

**Sowing in ridges.** The sowing of seed above the level of the ground.

**Sowing in situ.** The sowing of seed in places where the resulting trees are intended to remain. *See* Direct sowing.

**Sowing in strips.** The sowing of seed in beds, formed by the previous cultivation of parallel, narrow strips, alternating with broader bands which are left unsown.

**Sowing in trenches.** The sowing of seed below the level of the ground in continuous lineal excavations.

**Sowing, Partial.** *See* Partial sowing.

**Sour humus.** *See* Acid humus.

**Species, Accessory.** *See* Accessory species.

**Species, Auxiliary.** *See* Auxiliary species.

**Species, Delicate.** *See* Delicate species.

**Species, Exclusive or Gregarious.** *See* Gregarious species.

**Species, Hardy.** *See* Hardy species.

**Species, Principal.** *See* Principal species.

**Species, Sporadic.** *See* Sporadic species.

**Sporadic species.** Trees which have a tendency to grow distributed singly throughout a forest.

**Square planting.** *See* Planting in squares.

**Stack.** A pile or heap of wood.

**Stacked cubic feet.** Or **Stacked contents.** The space occupied by a pile or heap of wood in distinction to the cubic contents of the wood itself.

**Stages of development of a forest crop.** *See* Crop.

**Stages of growth of trees.** A separate individual is termed a *seedling* from the germination of the seed to the time when it begins to lose its lower branches; a *sapling* when it begins to lose its lower branches; a *pole* from the fall of the lower branches to the time when it attains its full height; and a *tree* from the time of its having attained its normal height.

**Stagheaded.** A tree of which a portion or all of the crown is dead.

**Standard.** The trees permitted to remain after a coppice felling. *See* Coppice with standard system.

**Standard of the first, second, or third rotation.** Trees that have remained standing through 1, 2, or 3 coppice rotations.

**Star shake.** Faults in timber due to excessive age, or to a too dry or too wet condition of soil. *See* Shakes.

**State forest.** A forest which is the property of a State or Government.

**Stem.** The trunk of a tree from the ground to the point where its main branches are given off. *See* Bole.



**Stem analysis.** The investigation of the progress of increment throughout the life of a tree.

**Stem fire.** A fire which ignites the stems of the trees. *See* Forest fire.

**Stem form factor.** *See* Form factor.

**Stiff (of a soil).** A soil which is cohesive and tenacious.

**Stock ; or Stocking.** The entire collection of trees growing on a given area. *See* Crop.

**Stock, to.** To cover with forest growth.

**Stock, Growing.** *See* Growing stock ; Crop.

**Stock map.** A graphic exposition of the manner in which the forest stock, species, and age classes are distributed over the forest area.

**Stock, Producing.** *See* Producing stock.

**Stool.** The lowest part of the stem of a tree, together with the roots, left when a tree has been felled close to the ground.

**Stool-shoot.** A stem springing from the stool or stump of a felled tree.

**Storeyed forest.** *See* Forest in storey.

**Storeyed forest method.** Forming a crop of stems of different ages, the crowns of which are arranged in tiers, the difference in age between the trees of each consecutive tier being equal to the length of the felling rotation. The method differs from that of coppice with standards, because regeneration is obtained principally by seed instead of by stool-shoots.

**Strip felling.** *See* Method of clear fellings, or Clearances.

**Strip method of successive regeneration fellings.** When regeneration fellings are made in narrow strips. *See* Method of successive regeneration fellings.

**Strip sowing.** *See* Sowing in strips.

**Stub out, to.** To root up. The grubbing out of stumps. To cut a tree or shrub out by the roots so that no stool is left.

**Stump.** That portion of the stem below the cut made in felling a tree.

**Subcompartment.** A portion of a compartment either temporarily or permanently set aside for convenience of working.

**Subsoil.** The stratum of earth lying between the upper soil and the rocks.

**Successive regeneration fellings method.** *See* Method of successive regeneration fellings.

- Sucker.** An aerial shoot sprung from a root.
- Suppressed tree.** A tree of which the growth has practically ceased as the result of too much overhead cover. *See* Crown.
- Surface cover.** All small plants growing in a forest, except young trees, as well as that portion of the forest floor which is not in an advanced state of decomposition.
- Surface feeder.** A species of which the roots spread near the surface.
- Surface fire.** A forest fire which runs over the undergrowth. *See* Forest fire.
- Survey, Enumeration.** *See* Enumeration survey.
- Survey, Valuation.** *See* Valuation survey.
- Sustained working.** A forest so worked that the soil continuously produces crops of wood from regeneration to exploitation.
- Sustained yield.** The material yielded by sustained working.
- Sylvicultural system.** A method according to which the formation, regeneration, tending and exploitation of the woods which compose a forest is effected.
- Sylviculture.** The formation, regeneration, and tending of forests.
- System, Coppice.** A method of treatment by regeneration from stool or root-shoots. *See* Coppice system.
- System, High forest compartment.** *See* Compartment system.
- System of coppice with standards.** *See* Coppice with standards system.
- System of high forest.** A method of treatment by regeneration from seed artificially or self-sown.
- System of high forest with reserves.** A method of treatment by regeneration from seed and clear felling with the exception of a few trees which are left to grow to a larger size. *See* High forest with reserves system.
- System, Sylvicultural.** *See* Sylvicultural system.
- Systematic fellings.** Fellings carried out according to some recognized sylvicultural system. *See* Sylvicultural system.
- Table, Volume.** *See* Volume table.
- Table, Yield.** *See* Yield table.
- Tapping, Gum or Resin.** *See* Resin tapping.
- Taungya plantation, Teak or Cutch.** *See* Cutch or Teak taungya.
- Technical rotation.** The rotation under which a forest yields the most suitable material for a certain fixed purpose.
- Temporary nursery.** A nursery which is used for a few years only, generally to yield the material for the planting of a particular

locality, when it is abandoned and a new nursery laid out elsewhere.

*See* Forest nursery.

**Temporary treatment.** *See* Provisional treatment.

**Tender, Frost.** *See* Frost tender.

**Tending (of a wood).** Includes the preservation of the factors of the locality by maintaining both suitable overhead and soil covering; the protection of the crop against external dangers: the preservation of the proper density of the crop and of a proper mixture of species: cleaning, pruning, thinning, and other operations for the benefit of the stock.

**Test, Germinating.** *See* Germinating test.

**Thicket.** A dense crop of seedlings from the time when their side branches commence touching or interlacing until the time when the lower branches begin to die and fall.

**Thin canopy.** When half to three-fourths of ground is shaded.

**Thin wood.** *See* Wood, Open.

**Thinnings.** The removal of excess stems from a crop with the object of diminishing adverse competition and affording more light and space. *See* Heavy thinning.

**Tidal forests.** Forests whose existence or condition is referable to the influence of the tides.

**Tier, Lower and Upper.** *See* Two-storeyed forest.

**Timber.** Wood above a certain minimum diameter or girth. For statistical purposes a minimum girth of two decimeters is taken in Europe.

**Timber, Conversion of.** *See* Conversion of timber.

**Timber, Floatable** *See* Floatable timber.

**Timber form factor.** *See* Form factor.

**Timber impregnation.** *See* Impregnation.

**Timber, Merchantable.** *See* Merchantable timber.

**Timber, Roughly squared.** Timber with an approximately rectangular cross section.

**Timber, Round.** *See* Round timber.

**Timber, Sawn.** *See* Sawn timber.

**Topping.** The removal of the crown of a tree by cutting off the stem at a certain height from the ground. *See* Pollard, to.

**Top dry.** *See* Stagheaded.

**Top soil.** *See* Humus.

**Top sore.** *See* Stagheaded.

**Total increment.** The increment laid on from the origin of a tree or wood up to certain age.

**Taungya.** *See* Jhum.

**Trace, Fire.** *See* Fire-line or trace.

**Transformation.** The change from one method of treatment to another of the same class, without altering the manner in which reproduction is obtained. The fellings made in such cases are called "*transformation fellings*."

**Transformation period.** The period during which the change from one method of treatment to another of the same class is effected.

**Transplant, to.** Planting out transplants in the forest.

**Transplants.** Seedlings which have been moved once or oftener in the nursery lines.

**Trap tree.** Dead or girdled standing trees or logs left in a forest, attacked by insects, in order to lead the pests off from the valuable tree crop.

**Treatment of forests.** The silvicultural method according to which the forest crop is managed. *See* Provisional treatment.

**Tree.** 1. A large woody plant which at some distance from the ground produces branches.

2. The separate individuals of a crop are termed *trees* from the time of attaining normal height.

3. Under Forest Acts a "tree" includes palms, bamboos, stumps, brushwood and canes.

*See* Tree forest; Stages of growth of trees.

**Tree, Alburnum.** *See* Alburnum tree.

**Tree analysis.** The investigation of the progress of increment throughout the life of a tree.

**Tree, Broad-leaved.** *See* Broad-leaved trees.

**Tree class.** All trees of approximately the same size. The following tree classes are distinguished—Seedling, Sapling, Pole, Tree.

**Tree compass.** An instrument for the measurement of the diameter of trees.

**Tree, Deciduous.** *See* Deciduous tree.

**Tree, Evergreen.** *See* Evergreen tree.

**Tree forest.** A crop of trees, which has attained the period of principal height growth.

- Tree form factor.** *See* Form factor.
- Tree, Gregarious.** *See* Gregarious species.
- Tree-growth.** The entire collection of trees growing on a given area.  
*See* Crop.
- Tree, Light demanding.** *See* Light demanding.
- Tree Mother.** *See* Mother tree.
- Tree, Parent.** *See* Mother tree.
- Tree, Sample.** *See* Sample tree.
- Tree, Seedling.** *See* Seedling tree.
- Tree, Shade bearing.** *See* Shade bearer.
- Tree, Sporadic.** *See* Sporadic species.
- Tree, Suppressed.** *See* Suppressed tree.
- Tree, Trap.** *See* Trap tree.
- Tree weed.** A tree of a species which has little or no value.
- Trench planting or sowing.** *See* Planting in trenches; Sowing in trenches.
- Triangular planting.** *See* Planting in triangles.
- Trim, to.** To remove buds or side shoots from young plants. *See* Handle.
- Trunk.** *See* Stem.
- Two-storeyed forest.** The introduction of a second crop (usually of shade bearing species and generally by sowing or planting) into an older crop, so that practically two distinct high forests each of even-age exist on the same area. The original crop forms "the upper tier or storey" or "over wood;" the crop subsequently introduced "the lower tier or storey."
- Type tree.** *See* Sample tree.
- Undergrowth.** Large woody plants, young trees or shrubs forming the lowest tier of forest vegetation.
- Underplanting.** To plant young trees under an existing older crop.
- Undershrub.** Inferior vegetation partially woody not coming up to the dimensions of shrubs.
- Underwood.** The young tree growth springing up under the reserve trees. *See* Two-storeyed forest.
- Uneven-aged crop.** A crop of trees made up of many different age classes.
- Uniform crop** A crop of trees approximately all of one age or size.
- Uniform method.** *See* Method of successive regeneration fellings.

- Unregulated or Unclassed fellings.** Removal of trees, exploitable or not, and uncontrolled by any silvicultural method.
- Upper storey or tier.** *See* Two-storeyed forest.
- Urich's method of sample trees.** A modification of the general method of sample trees.
- User (right of).** *See* Servitude.
- Utilization, Forest.** *See* Forest utilization.
- Utilization value (of growing stock).** The price which a wood would realise if offered for sale in the open market. *See* Sale value.
- Utilization per cent.** *See* Forest per cent.
- Valuation, Forest.** *See* Forest valuation.
- Valuation survey.** The determination or estimation of the value of the growing stock.
- Value, Cost.** *See* Cost value.
- Value, Expectation.** *See* Expectation value.
- Value, Rental.** *See* Rental value.
- Value, Sale.** *See* Sale value.
- Value, Utilization.** *See* Utilization value.
- Vegetable mould,** Thoroughly decomposed vegetable detritus.
- Vegetable soil.** That portion of the soil which contains a percentage of vegetable matter.
- Village forest.** *See* Forest Act, Chapter III.
- Virgin forest.** A natural forest uninfluenced by men.
- Volume growth or increment.** The yearly growth of a tree in volume.
- Volume, Merchantable.** *See* Merchantable volume.
- Volume table.** A tabular statement giving for a forest the volumes of the type trees of the different diameter classes.
- Waste land.** Land which is not used for any specific purposes.
- Watcher, Fire.** *See* Fire-patrol or watcher.
- Weed tree.** A tree of a species which has little or no value.
- Weeding.** The removal or partial cutting back of herbs, climbers, shrubs, and soft wooded trees which tend to impede the growth of a young crop.
- Windfall.** A tree thrown by wind.
- Windbreak.** 1. A tree broken by wind.  
2. A natural or artificial forest maintained, as a protection against wind.

**Windfirm.** Able to withstand strong winds.

**Wood; or Woodland.** An area of defined dimensions, which carries trees or shrubs or both, and is managed for the production of major or minor forest produce.

**Wood, Broad-leaved.** *See* Broad-leaved wood.

**Wood, Crowded.** *See* Crowded crop.

**Wood dépôt.** *See* Dépôt.

**Wood faggot.** *See* Faggot.

**Wood, Faggot.** *See* Faggot wood.

**Wood in the round.** *See* Round timber.

**Wood, Mixed.** *See* Mixed crop.

**Wood, Open or Thin.** A wood in which the crowns of the trees do not interlace, but form an interrupted leaf canopy which only partially shelters the ground. A thin wood may be regularly or irregularly stocked.

**Wood, Pure.** A wood which consists of one species only.

**Wood, Sap.** *See* Sap wood.

**Wood, Soft.** *See* Soft wood.

**Working capital.** The producing forest stock. *See* Forest capital.

**Working Circle.** An area subjected to one and the same silvicultural system and method of treatment and which is exploited by means of a distinct series of operations.

**Working, Intermittent.** *See* Intermittent working.

**Working-Plan.** A compilation of silvicultural prescriptions regulating the management of a forest so as to best meet the wishes of the owner and indicating the means by which this purpose may be accomplished.

**Working-Plan report.** A document which gives in a systematic manner all the necessary information regarding a forest so that the objects for which a forest is maintained may be as fully as possible realized.

**Working, Sustained.** *See* Sustained working.

**Wounding (of the soil).** The *superficial loosening* of the soil with the rake, harrow, or hoe as a preparation for broadcast sowing, or to encourage natural regeneration by seed.

**Yearling.** A one year old seedling, shoot or sucker.

**Yield.** The total volume or quantity of all produce whether removed, utilized, or not.

**Yield capacity.** The total quantity of material of a given species which a given area is capable of producing under normal conditions as long as the factors of the locality remain unchanged.

**Yield, Determination of.** *See* Determination of the yield.

**Yield, Final.** *See* Final yield.

**Yield, Future.** *See* Future outturn.

**Yield, Intermediate.** *See* Intermediate yield.

**Yield, Net.** *See* Net yield.

**Yield, Normal.** *See* Normal yield.

**Yield, Possible.** *See* Potential possibility.

**Yield, Present.** *See* Possibility, Actual.

**Yield, Sustained.** *See* Sustained yield.

**Yield table.** A tabular statement which gives the course of the development of a wood from early youth up to a certain age, either from year to year, or for intervals of a certain number of years.

**Yield table, Money.** A tabular statement which gives the course of the development of the money value of a wood from early youth up to a certain age, either from year to year, or for intervals of a certain number of years.

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## APPENDICES.

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APPENDIX I.—The Sylvicultural Systems.

APPENDIX II.—Sylvicultural Systems—Indian, English and American  
*synonyms.*

APPENDIX III.—Forestry Terms peculiar to the United States of America.



APPENDIX III—*contd.*

*Forestry terms peculiar to the United States of America and their English equivalents—contd.*

American term.	English equivalent.
Row planting . . . .	Planting in lines.
Sapling . . . . .	A tree 3 feet or more in height, and less than 4 inches in diameter breast-high.
Scattered seed method . . . .	Method of successive regeneration fellings (with only a seed felling and a final felling).
Scratcher . . . . .	Bark-blazer.
Second growth . . . . .	Natural regeneration.
Section analysis . . . . .	Stem analysis to determine diameter growth only.
Silvical . . . . .	Sylvicultural.
Silvical rotation . . . . .	Physical rotation.
Silvics . . . . .	Habit; Sylvicultural characteristics.
Single tree method . . . . .	Selection method.
Single tree mixture . . . . .	A mixed forest in which trees of different species occur singly.
Small pole . . . . .	A tree 4-8 inches in diameter breast-high.
Small sapling . . . . .	A sapling, 3-10 feet in height.
Sprout . . . . .	Coppice.
Stand class . . . . .	Quality of locality class.
Stand fire . . . . .	Stem fire.
Stand method . . . . .	Method of successive regeneration fellings.

APPENDIX III—*concl'd.*

*Forestry terms peculiar to the United States of America and their English equivalents—concl'd.*

American term.	English equivalent.
Stand table . . . .	Yield table.
Stratify, to . . . .	To preserve tree seeds by spreading them in alternate layers of sand and seed.
Strip method . . . .	Method of clear fellings by strips.
Strip stand method . . . .	Method of successive regeneration fellings by strips.
Stump age . . . .	The age of a tree as determined only by ring countings on stumps.
Stump analysis . . . .	Ring countings on stump surface.
Tolerant . . . .	Shade bearing.
Tree scribe . . . .	Bark-blazer.
Veteran . . . .	A tree over 2 feet in diameter breast-high.
Volume rotation . . . .	Rotation of the greatest volume.
Volunteer growth . . . .	Natural regeneration in deserted fields.
Wind mantle . . . .	Shelterbelt.

